

WHAT IS CLAIMED IS:

1. A process for reclaiming ammonia from at least one waste stream comprising:
providing a reaction vessel;
introducing at least one waste stream comprising ammonium into the reaction vessel;
introducing at least one hydroxide source into the reaction vessel;
combining the at least one waste stream and the at least one hydroxide source;
reacting the ammonium from the at least one waste stream and the hydroxide source to produce ammonia;
and removing the ammonia from the reaction vessel.
2. The process according to claim 1, further comprising:
purifying the ammonia.
3. The process according to claim 1, wherein the at least one waste stream comprises ammonium hydroxide, hydrogen peroxide and water.
4. The process according to claim 3, wherein the at least one waste stream further contains silicon in a dissolved or particulate form.
5. The process according to claim 3, wherein the step of providing a reaction vessel comprises providing a reaction vessel containing at least one catalyst.
6. The process according to claim 5, wherein the at least one catalyst is $\text{Cu}(\text{NO}_3)_2$.
7. The process according to claim 6, wherein the at least one catalyst is present in an amount from about 0.1 to about 5.0% by weight of the at least one hydroxide source.
8. The process according to claim 1, wherein the reaction vessel is maintained under vacuum.
9. The process according to claim 8, wherein the reaction vessel is maintained at a temperature in the range of from about 25°C to about 70°C.
10. The process according to claim 8, wherein the reaction vessel is maintained at a temperature of about 50°C.
11. The process according to claim 1, wherein the reaction vessel is maintained at a temperature in the range of from about 50°C to about 100°C.
12. The process according to claim 1, wherein the reaction vessel is maintained at a temperature of about 70°C.
13. The process according to claim 1, wherein the at least one hydroxide source is at least one solution containing hydroxide in a concentration greater than about 10% by weight and less than 55% by weight.

14. The process according to claim 13, wherein the at least one solution contains hydroxide in a concentration of about 50% by weight.

15. The process according to claim 13, wherein the source of the at least one solution is an alkaline etch bath solution.

16. The process according to claim 1, wherein the at least one hydroxide source comprises at least one alkali metal hydroxide compound.

17. The process according to claim 16, wherein the at least one alkali metal hydroxide compound is chosen from sodium hydroxide and potassium hydroxide.

18. The process according to claim 1, wherein the at least one waste stream comprises at least one SC-1 chemical bath solution.

19. A process for reclaiming ammonia from at least one waste stream comprising:
providing a reaction vessel;
introducing at least one waste stream comprising ammonium hydroxide,
hydrogen peroxide, and water into the reaction vessel;
introducing at least one hydroxide source into the reaction vessel;
combining the at least one waste stream and the at least one hydroxide source;
reacting the ammonium hydroxide from the at least one waste stream and the at least one hydroxide source to produce ammonia;
and removing the ammonia from the reaction vessel.

20. The process according to claim 19, further comprising:
purifying the ammonia.

21. The process according to claim 19, wherein the at least one waste stream further contains silicon in a dissolved or particulate form.

22. The process according to claim 19, wherein the step of providing a reaction vessel comprises providing a reaction vessel containing at least one catalyst.

23. The process according to claim 22, wherein the at least one catalyst is $\text{Cu}(\text{NO}_3)_2$.

24. The process according to claim 22, wherein the at least one catalyst is present in an amount from about 0.1 to about 5.0% by weight of the at least one hydroxide source.

25. The process according to claim 19, wherein the reaction vessel is maintained under vacuum.

26. The process according to claim 25, wherein the reaction vessel is maintained at a temperature in the range of from about 25°C to about 70°C.

27. The process according to claim 25, wherein the reaction vessel is maintained at a temperature of about 50°C.

28. The process according to claim 19, wherein the reaction vessel is maintained at a temperature in the range of from about 50°C to about 100°C.

29. The process according to claim 19, wherein the reaction vessel is maintained at a temperature of about 70°C.

30. The process according to claim 19, wherein the at least one hydroxide source is at least one solution containing hydroxide in a concentration greater than about 10% by weight and less than 55% by weight.

31. The process according to claim 30, wherein the at least one solution contains hydroxide in a concentration of about 50% by weight.

32. The process according to claim 30, wherein the source of the at least one solution is an alkaline etch bath solution.

33. The process according to claim 19, wherein the at least one hydroxide source comprises at least one alkali metal hydroxide compound.

34. The process according to claim 33, wherein the at least one alkali metal hydroxide compound is chosen from sodium hydroxide and potassium hydroxide.

35. The process according to claim 1, wherein the at least one waste stream comprises at least one SC-1 chemical bath solution.